Taking the Next Step Towards Supply Chain 4.0
Oracle Supply Chain Management Leads the Charge

Supply chain 4.0 is the next step of process evolution that will fully integrate suppliers, manufacturers, distributors, and customers both digitally and globally. This confluence of business trends initiated by Industry 4.0 will require increasingly robust and sophisticated toolsets that not only provide the traditional capabilities of ERP but also incorporate innovative technologies like machine learning, internet of things (IoT), blockchain, social collaboration, data visualization, and embedded analytics.

This guide illustrates the challenges of transitioning to supply chain 4.0, the different stages that companies will need to go through to harness these new process and technology tools, and how Oracle Supply Chain Management Cloud can support this process.

By 2023, almost 50% of large global companies will be using AI, advanced analytics, and IoT in supply chain operations.¹

¹ Gartner
Any introduction to supply chain 4.0 must begin by defining Industry 4.0, or the fourth industrial revolution. This revolution improves on the digital revolution (Industry 3.0) with significant advances in personal computing, information technology, and global connectivity.

Industry 4.0 introduces new concepts and technologies that fuse the physical and digital worlds in myriad ways. This disruption will be felt across industries and redefine both supply chain concepts and competitive advantages in increasingly short windows.

One of the biggest challenges facing all companies with a strategic initiative to embrace new and emerging technologies is where to invest for long-term success. Further, the sequence of how tools are deployed – and more importantly, adopted – by users across the organization will determine if the investments will deliver the maximum return and competitive advantage in all areas of the supply chain.

Our work with a wide variety of organizations has given us insights into the most common concerns facing supply chain centric companies in their pursuit of supply chain 4.0. These concerns include:

1. Identifying signature supply chain processes
2. Choosing the right supply chain technology
3. Embracing change with minimal impact
4. Change management implications
5. Partnering with a technology vendor
6. Measuring supply chain metrics
7. Creating data visualizations, analytics, and reports
Begin with Identifying Signature Supply Chain Processes

Organizations wishing to transition to supply chain 4.0 need to first assess where it makes the most sense to innovate. This is often easier said than done as each company and industry have very specific challenges when it comes to technology adoption, maturity of processes, skill sets within its workforce, and willingness to transition to new approaches.

Identifying and understanding which business processes are mission critical or ‘signature’ to an organization is the logical first step to address areas of the supply chain that will deliver quick wins and the greatest return on investment.

In most cases, the range of supply chain processes that can be formalized and/or optimized are broad and often heavily intertwined with each other, such that a change to one of them may have a ripple effect on downstream activities.

A great number of supply chain technology initiatives fail to materialize because organizations did not put enough emphasis on defining a scalable future state irrespective of technology platform. This process definition stage will not only determine the level of disruption to the organization, but also help further define the key requirements of the technology stack in order to achieve desired outcomes.

Supply chain leaders must identify where to innovate and invest in new processes and technologies to help their companies remain relevant in their markets.²

² Gartner
Choosing the Right Supply Chain Technology

The process of identifying which technologies to incorporate into an organization’s toolset can be overwhelming and challenging due to the sheer number of options that exist in the marketplace across the different areas in the supply chain spectrum.

Executing a quick assessment and selection process is key to jumpstarting a technology implementation effort. It’s highly recommended to partner with a vendor experienced in a broad range of toolsets to help ensure the best option is put forth to leadership.

Oracle has a vast array of solutions that address many of the technology needs of organizations seeking to innovate and embrace supply chain 4.0 concepts. These can also be deployed in phases and rightsized to pair with a particular process maturity level.

It’s important to understand where the organization is and wants to be when it comes to emerging technologies like machine learning, IoT, blockchain, chatbots, social networking, etc. The deployment of these technologies often comes with prerequisite processes, metrics, and technology stacks that need to be in place. Obtaining an honest evaluation of what level of technology an organization is willing to adopt may surprise IT and supply chain leadership. It can prevent initiatives that go in a direction where benefit cannot be yet obtained.
How to Embrace Change with Minimal Impact

Organizations seeking to incorporate supply chain 4.0 concepts into their technology platform often do so using a phased approach. This option minimizes the amount of time and effort needed from business users and IT personnel to implement new capabilities and manage process changes.

The disruption to business operations across a broad process spectrum adds complexity to technology deployments. Selecting a smaller subset of processes to start with – such as procurement, logistics, supply chain planning, and field service – is a good way of growing into more advanced toolsets while minimizing deployment time and cost.

Hybrid (on-premises and cloud) application toolsets are becoming more common for bigger application footprints. Reaping the benefits of both types of applications while controlling the pace of adoption and innovation of supply chain 4.0 can be a good way to minimize the need for change management while incorporating innovative capabilities into select business processes.
Supply Chain Cloud Capabilities

**Procurement**
- Insight to Smart Sourcing
- Requisition to Receipt
- Contract Creation to Spend Compliance
- Supplier Registration to Supplier Performance
- Supplier Return to Settlement
- Supplier Invoice to Payment

**Order Management**
- Multichannel Order to Promise
- Fulfillment Orchestration to Invoice
- Order to Drop Shipment

**Manufacturing**
- Forecast to Plan
- Production Order to Cost Updated
- Contract Manufacturing Request to Delivery

**Inventory Management**
- Plan to Replenish
- Material Receipt to Directed Putaway
- Material Request to Delivery

**Logistics**
- Shipment to Dispatch
- Inbound Shipment to Receipt
- Freight Invoice to Approval
- Lane Forecast to Carrier Contract

**Service & Maintenance**
- Customer Contract to Resolution
- Service Request to Dispatch
- Knowledge Gap to Solution
- Sensor Alert to Preventive Maintenance
- Customer Sentiment to Preventive Maintenance
Change Management Implications

The right technological toolset can help organizations tackle the challenges of achieving supply chain 4.0 excellence. However, that alone though is not enough to ensure transformation success.

When complex and heavily integrated processes get introduced and socialized within the organization, the ability to assimilate change in a rapid and orderly fashion will produce the greatest return on investment and minimize frustration. Having a good change management methodology – including ownership of the transition within the different organizational levels and socializing the impact of the investment to key stakeholders – will increase the likelihood of process adoption and integration on the journey to supply chain best-in-breed execution.

“Projects that employ effective change management are six times more likely to be successful than those that do not.”

Choosing a Technology Vendor

There are a number of software vendors to choose from a marketplace where new and emerging technologies constantly change the rules of engagement and process excellence. For maximum return on investment, organizations should align with a vendor that not only fulfills defined requirements in the current state, but that also will allow for streamlined processes further down the road as the user base skill stabilizes and improves.

Partnering with a vendor who is constantly addressing emerging technologies, while investing in the latest supply chain process trends directly influenced by best-in-breed companies, will pay dividends for organizations looking to make the journey to supply chain 4.0 as smooth as possible.

As capabilities shift from on-premises to cloud environments, it is also important to understand how the transition will be managed in companies that choose to implement supply chain capabilities in phases, with a corresponding tech stack to support the interfaces of information needed to operate both environments.

Oracle Supply Chain Management Cloud supports both native and out-of-the-box integration between major business processes such as financials, procurement, manufacturing/distribution, inventory management, logistics, asset maintenance, and field service within a common user interface that takes advantage of emerging technologies and can help enable a successful transition to supply chain 4.0.
Supply Chain Metrics

One of the biggest trends in supply chain 4.0 is the ability to gain real-time insights from an ever-growing set of data that is generated within the different transactions and processes enabled by ERP and other boundary systems.

Defining what process metrics determine success (and gathering the data needed to measure it) becomes of vital importance to organizations seeking to find a quantitative and qualitative way to establish a baseline of excellence. For most supply chain areas, these metrics are agnostic of the toolset being used, and should be carefully evaluated and obtained from leading methodologies like Supply Chain Council’s SCOR® model and Balanced Scorecard that represent best in class measurements.

Partner with a professional services organization that can not only help identify the best metrics for signature business processes, but also provide the implementation experience to deploy them across the enterprise.

Leveraging a software tool that has some of these metrics already built in is also a good way to jump start a supply chain transformation project, as it minimizes technical development time and also establishes an initial “true north” for organizations seeking to measure themselves in a more formal way.
Data Visualization, Analytics, and Reporting

At the convergence of people, process, and technology in supply chain 4.0 sits the mountains of data that will support efficient decision making and provide insight into performance. Metrics alone are sometimes not enough to define the success of a given supply chain process, as a result of the complexities that exist in a broad group of customers, suppliers, manufacturers, distributors, and logistics providers.

Supply chain business users are increasingly more demanding of real-time insights and analytics due to the increase in use of mobile apps, efficient web pages, and an overall more technology-centric focus of everyday tasks. This trend must be met with a robust set of reporting capabilities that go above and beyond simple reports of one-dimensional data sets and facts.

Organizations need to support the ever-increasing demands of business users and also make the most of the innovations that come with adopting supply chain 4.0 concepts. To do this, the business needs to put an emphasis on real-time insights that can correlate and organize unstructured data into a cohesive set of dashboards, insights, trend analysis, and prediction algorithms.
SUCCESS STORY

Full Transparency Through the Entire Supply Chain with Oracle ERP and SCM Cloud

CHALLENGE & OPPORTUNITY
Stallion Oilfield Services, a provider of turnkey solutions to both onshore and offshore drilling companies, was challenged to instill discipline in the business to operate in accordance with pre-defined business rules, but with ad-hoc flexibility. It needed to standardize processes across all business units and to establish governance and accounting controls.

SOLUTION HIGHLIGHTS
• Implemented Oracle ERP Cloud Financials, Oracle SCM Cloud Procurement and Inventory, and Oracle Project Portfolio Management Cloud
• Job-level signing authorities with employee/supervisor hierarchy based on integrated Human Capital Management configuration

KEY BENEFITS
• Management has immediate view into business operations
• Automatic accruals increase efficiency and accelerate month end
• Streamlined procurement processes ensures controls over spend with individual accountability for expenditures
How to Incorporate SCM 4.0 if You’re Not Cloud Ready

Some organizations have already gone through cloud readiness assessment and roadmap exercises to determine if the cloud is a right fit for its supply chain initiatives. While misconceptions about what the cloud can and cannot do are prevalent and may influence a status quo decision, there might be other mitigating factors preventing the commencement of a cloud journey.

The good news for companies that have chosen to delay their cloud journey in the short term is that they can still start incorporating supply chain 4.0 concepts and tools into their processes by leveraging the latest version of Oracle E-Business Suite. This toolset has some key capabilities that can jump start and stabilize processes across the supply chain until the organization is ready to fully embark on a journey to the cloud.

With multiple paths to the cloud, organizations can choose to deploy specific capabilities like supply chain planning, product data hub or procurement as standalone cloud deployments while continuing to keep the rest of their financial and supply chain capabilities on premises. Engaging in activities like streamlining business processes, eliminating non-value-added process steps, optimizing ERP data sets, and crafting a visionary toolset over time can still be performed while continuing to use on-premises tools.
Optimized and Transformed Finance and Supply Chain Processes with Oracle E-Business Suite

CHALLENGE & OPPORTUNITY
TRAC Intermodal, North America’s leading intermodal equipment provider and marine chassis pool manager, wanted to replace an outdated enterprise resource planning system with Oracle E-Business Suite. TRAC needed an expert partner that could advise on best practices for business processes and instill confidence from executives to business users.

SOLUTION HIGHLIGHTS
• Three-month POC to stand up Oracle Financials
• Multi-phase deployment with focus on change management
• Implemented Oracle E-Business Suite: Asset Management, Finance, Procurement, Inventory Management, Order Management, Service
• Integrations with third-party systems including home-grown and MDM/data conversions
• Implemented Vertex for tax automation

KEY BENEFITS
• Tangible ROI centered on headcount reductions, reduced inventory, and asset tracking
• Designed a finance transformation that included an enterprise organization model with a scalable COA and a reporting structure to support financial analysis
• Risk-averse deployment built on an Agile methodology to include the business community and drive user adoption
Tackling Supply Chain 4.0

Adopting supply chain 4.0 concepts and practices can be overwhelming for supply chain leaders. The topics explored in this guide provide a starting point for discussing what the journey might look like, and the components of a smooth transition.

Considering all the moving parts in a supply chain transformation project, it is important to partner with a professional services organization that can provide the right level of expertise within the different capabilities of people, process, and technology.

Perficient’s Oracle ERP practice has multiple technology certifications, proven methodologies, success stories and expertise across the spectrum of supply chain processes traditionally targeted for rapid success.
Map a Successful Path to Supply Chain 4.0

Your process design and technology can mean the difference between a responsive and customer-centric supply chain. Investing in a proper roadmap and vision, can position an organization to be a market leader and also take advantage of emerging technologies and trends like machine learning, IoT, analytics and social networking.

Why Perficient

Our Oracle Supply Chain practice is comprised of professionals with a vast variety of skills and backgrounds. We have developed internal tools and accelerators, as well as used our deep understanding of both Oracle and multiple industries, to innovate solutions to complex business requirements and process redesigns across the spectrum of supply chain, including procurement, order management, manufacturing/distribution, logistics, service and maintenance. We also have Oracle financial transformation and optimization experts who frequently complement our supply chain teams to provide a fully integrated solution.

Core Capabilities

Speed-to-Value Assessments
- Oracle Cloud Readiness
- Oracle Supply Chain Technology Roadmap
- Oracle Supply Chain Proof of Concept Development
- Business Process Design

Oracle Supply Chain Optimization
- Oracle Supply Chain Upgrades
- Oracle Supply Chain Capability Optimizations
- Oracle Supply Chain New Capability Deployment

Oracle Supply Chain Implementations
Oracle Supply Chain Full Lifecycle Implementations
- Move-and-Improve/Lift-and-Shift
- “Innovate at the Edge”
- Re-implementation of Core Supply Chain Capabilities
Meet the Author

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Luis has more than 18 years of experience in deploying complex and innovative Oracle supply chain technology projects. He has multiple supply chain certifications and deep cross-industry experience. He is a PMP, APICS, Demand Flow, and Oracle EBS/Cloud certified professional, and previously held supply chain management leadership positions at Deloitte, Emtec, and Motorola.
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